

## **LOCKING COOKWARE ARTICLE**

### **CROSS-REFERENCES TO OTHER RELATED PATENT APPLICATIONS**

[0001] This application claims priority to U.S. provisional application serial No. 60/456,740 filed March 21, 2003 and U.S. provisional patent application serial No. 60/481,969, filed January 31, 2004, both of which are incorporated herein by reference in their entireties.

### **STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT**

[0002] Not Applicable.

### **REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISK APPENDIX**

[0003] Not Applicable.

### **BACKGROUND OF THE INVENTION**

[0004] The present invention relates generally to the field of cookware, and more specifically cookware that have handles and which interlock more than one sections or portions of the cookware.

[0005] Most varieties and styles of cookware use handles and some of these cooking apparatuses use locking features to lock the lid or the top portion of the cookware to the base or one opposable surface to another. Most existing cooking wares that employ locking features are generally difficult to use because they require the cook to use two hands to operate the lock. For example, some pots and pans found in the prior art have lockable lids with snap down locking

handles on each side of the pot. In these items, the locks are integrated into the pot handles and the pots require the cook to separately lock and unlock each side of the pot in order to use the locking feature properly. The handles are designed to stay cool on the stovetop and are generally made of phenolic materials.

[0006] In general, high heat is bad for non stick surfaces. Cookware in the prior art comes in a variety of types of non-stick surfaces such as Teflon, but degradation of the chemicals into fumes is becoming known as a hazard to cooks.

## **BRIEF SUMMARY OF THE INVENTION**

[0007] One embodiment of the present invention includes a cookware article comprising a handle, two opposable surfaces, a detachable hinge, a lifting handle, and a means for locking the opposable surfaces. Another embodiment consists of the aforementioned article wherein the means for locking is comprised of: a stationary sleeve with a second handle positioned at the end, a stationary pin with a positioning collar, a semi-circular collar accommodating a rotation limiting latch pin and shoulder stop wherein said semi-circular collar is interlocked with said stationary pin, a round shaft accommodating lateral movement limiting rings, wherein said shaft is inserted through said stationary sleeve, wherein said stationary sleeve is attached to one opposing cookware surface.

[0008] Another embodiment includes the use of a second handle to lift one opposing cookware surface away from the other opposing cookware surface.

[0009] Another embodiment includes a circular collar instead of a semi-circular collar.

[0010] Another embodiment further includes a return spring in the means for locking.

[0011] Another embodiment of the present invention includes a means for locking wherein the circular collar accommodating a rotation limiting latch pin and two shoulder stops, wherein one of said shoulder stop limits movement of said shaft in the counter-clockwise direction and the other said shoulder stop limits movement of said shaft in the clockwise direction instead of the semi-circular collar.

[0012] Another variation of this embodiment further consists of a second handle which can rotate the range between approximately 20 degrees and 60 degrees.

[0013] Another embodiment of the present invention further includes a feature wherein the means for locking is detachable from the cookware.

## **BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS**

[0014] The above and other objects, advantages and features of the present invention will be more readily apparent from the following description, when read in conjunction with the accompanying drawings wherein:

[0015] FIG. 1 is a side view of a cookware article with an embodiment of the present invention;

[0016] FIG. 2 is a perspective view of a cookware article with an embodiment of the present invention;

[0017] FIG. 3 is a top view of a cookware article with an embodiment of the present invention;

[0018] FIG. 4 is a top view of a cookware article with an embodiment of the present invention;

[0019] FIG. 5 is an exploded view of an embodiment of the present invention;

[0020] FIG. 6 is an exploded view of an embodiment of the slotted component of the detachable hinge C of the present invention;

[0021] FIG. 7 is an exploded view of an embodiment of the tongued component of the detachable hinge F of the present invention;

[0022] FIG. 8. is a side exploded view of the hinge assembly joined of an embodiment of the present invention;

[0023] FIG. 9 is a side view of embodiment of the cooking surface with side pour spouts AA of another embodiment of the present invention.

## **DETAILED DESCRIPTION OF THE INVENTION**

[0024] One embodiment of the present invention is a locking cookware article which can be used in conjunction with a stovetop burner and which simulates some of the cooking characteristics of a Dutch oven. It can take the form of a covered pan, skillet or even a conventional oven. It has natural grip on a handle, a detachable hinge, a second rotating handle for lifting and securing components, cooking surfaces are constructed of a material that retains as well as distributes heat efficiently, and as a result, it takes less time to cook and is more energy efficient than other cooking methods.

[0025] It is preferred that the opposing cooking surfaces are alternately reheated by periodically rotating each component over the heat source. However, another suitable method of utilizing the properties of the apparatus would be to forgo the rotating of the device on the heat source. It is preferred that the components are unlocked and separated with the bottom component on the heat source. However, it is possible to utilize the locking mechanism and separate the components with the top component positioned on the heat source. One type of food that can be cooked in the cookware article is frozen food. However, other non-frozen foods such as meats, vegetables, garlic, popcorn, sandwiches, and others may also be cooked in the cookware apparatus.

[0026] The cooking process is accelerated as a result of the heated top component in close proximity to the food, radiating heat down upon the food with contact cooking from the bottom, and also because the heat is also applied to the top component when the cookware article is flipped. The top component absorbs heat from the bottom component and can be constructed of a material that retains and distributes heat efficiently. Both cooking surfaces can be made of

a material that retains and distributes heat efficiently such as hard anodized aluminum, but any suitable material will suffice for the purpose of the invention. The cookware article works more efficiently when the dissipated heat on the top component is replenished frequently with flipping. A further feature of the cookware article is that when it is separated into two cooking surface components, each component can be used as stand alone cookware such as skillets or hot plates.

[0027] The height of the side walls of the cooking surfaces in one embodiment of the cookware article is approximately 1 inch. Each cookware contributes one inch to create a cooking chamber that is 2 inches in diameter. Any suitable wall height of the cookware components will suffice for the purpose of the invention, and  $\frac{1}{2}$  to 2 inches will be a preferred range in most circumstances. Each component can be of a different height to suit the needs of the user. It is preferred that the cooking components are round in shape.

[0028] It is preferred that the cooking surfaces are made of a material that retains and distributes heat efficiently such as hard anodized aluminum. However, any suitable material will suffice for the purpose of the invention. It is preferred that the height of the side walls of the cooking surfaces is approximately 1 inch creating a cooking chamber that is 2 inches wide. However, any suitable wall height will suffice for the purpose of the invention, and  $\frac{1}{2}$  to 2 inches will be a preferred range in most circumstances. It is preferred that the cooking components are round in shape, however any suitable shape will suffice for the purpose of the invention, including shapes that feature pour spouts. Further, it is preferred that the opposing cooking surfaces have matching shapes. It is preferred that the overall weight of the apparatus is as light as possible. The preferred weight for the cookware article is approximately 3  $\frac{1}{2}$  pounds, a comfortable working weight, however any suitable weight will suffice for the purpose of the

invention, and 2 to 5 ½ pounds will be the preferred range of weight for most circumstances. It is preferred that the cooking surfaces have a non-stick coating such as Teflon, but any suitable coating will suffice for the purpose of the invention.

[0029] In another embodiment, the cooking surfaces have no coating. In another embodiment the hinge mechanism is detachable for convenience in both pre-heating and cleaning. Any suitable detachable hinge will suffice for the purpose of the invention. It is preferable that the hinge mechanism stays interlocked until the cooking surfaces are at a 90 degree angle of each other. Any suitable angle will suffice for the purpose of the invention, with 80 degrees to 110 degrees the preferred range in most circumstances.

[0030] The opposing cooking surfaces can be alternately reheated by periodically rotating each component over the heat source. However, another suitable method of utilizing the properties of the apparatus would be to forgo the rotating of the device on the heat source, in which case the components of the embodiment are unlocked and separated with the bottom component, the top component or both components on one or more sources of heat. The advantage with having two locked and joined cooking components is that a cooking chamber is created that radiates heat from both the top and the bottom while cooking with direct heat from the bottom component.

[0031] The means for locking in one embodiment consists of a locking pin with a positioning collar that interlocks with a circular collar with a latch pin and 2 rotation limiting shoulder stops, attached to a round shaft with lateral movement limiting retaining rings, inserted through a stationary sleeve with a handle on the end. It is preferred that the handle serves a dual purpose, having the capability to lift the top component, and by rotating the handle, the additional capability of engaging and disengaging the locking mechanism. However, any suitable lifting

handle that incorporates the function of a locking mechanism will suffice for the purpose of the invention. The lifting handle can be made of a heat resistant phenolic material for comfort, but any suitable material will suffice for the purpose of the invention.

[0032] Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout several views, Figure 1 is a side view of a cookware article with an embodiment of the present invention in its ready to cook position. It includes two opposing cooking surfaces (A&E), a handle(B), a detachable hinge mechanism(C&F), and a lifting/lock actuating handle(H) and a latch pin(J) of the present invention.

[0033] The cookware article is secured together by the hinge and locking apparatus. Figure 2 is a perspective view of a cookware article with an embodiment of the present invention with a hinge assembly connected and includes two opposing cooking surfaces (A&E), a handle (B), a detachable hinge mechanism (C&F), a locking pin (D), a lifting/lock actuating handle (H), a latch pin (J) and a upper shoulder stop (O).

[0034] In one embodiment, both cooking surface components are placed on separate stove top burners with flames on high for preheating. After approximately two minutes, frozen food is placed in the bottom component A and the flame under the bottom component A is then lowered. The handle H is used to lift the top component E from the burner and the hinge F of the top component is placed into hinge C of the bottom component A joining the components A and E. Top component E is lowered onto bottom component A. Locking pin J on component A is accommodated inside the semi circular collar G of the locking apparatus.

[0035] Lifting handle H is rotated clockwise until the latch pin J abuts to the handle H and this completed action secured bottom component A and top component E together. A predetermined level of heat is applied to the bottom component A with a flame for an amount of time. To stir



the food inside the cookware article, the user grasps the handle B located on the bottom component A and rotates or flips the cookware article 180 degrees placing the top component E on the heat source. This action is repeated until the food is cooked to a desired consistency and the heat is removed. An alternative method to stir or agitate the food is to grasp handle B and shake vigorously with a back and forth motion. Yet another method would be to unlock top component E, lift apart from component A and manually stir the food found in component A. To stop cooking and separate the cookware article, ensure that the bottom component A is closest to the bottom heat source, rotate the lifting handle H counterclockwise until shoulder stop abuts the top component E. This unlocks the locking mechanism. With lifting handle H, lift top component E away from bottom component A, disengage hinge F from hinge C, and separate the components. The food can then be served from the bottom component A. In another embodiment, the means for locking can additionally be detachable from the cookware to aid with cleaning.

[0036] FIG. 3 is a top view of a cookware article with an embodiment of the present invention, showing the cooking side of the bottom component A, including handle B, the slotted component of the detachable hinge C affixed to cooking surface of bottom component A, the locking pin D affixed to the cooking surface of component A and the positioning collar N.

[0037] FIG. 4 is a top view of a cookware article with an embodiment of the present invention showing the cooking side of the top component, and includes a lifting/lock actuating handle(H), a return spring(P), a sleeve(I) affixed to cooking surface(E) a lower shoulder stop(U), a circular collar(G), and the tongued component of the detachable hinge(F) affixed to the cooking surface(E).

[0038] FIG. 5 is an exploded view of an embodiment of the present invention showing in detail the locking mechanism and includes a handle(H), attached to a shaft(K), with a return spring(P), a sleeve(I), 2 external retaining rings(M), an upper shoulder stop(O), a lower shoulder stop(U), a latch pin(J), circular collar(G), a locking pin(D) and a positioning collar(N).

[0032] In the aforementioned views, the locking apparatus utilizes a stationary pin with a positioning collar that interlocks with a semi-circular collar with a rotation limiting latch pin and shoulder stop attached to a round shaft with lateral movement limiting retaining rings inserted through a stationary sleeve with a handle on the end. This handle serves the dual purposes of both lifting the top component (the top opposing surface of the cookware) and either engaging or disengaging the locking mechanism. The handle can be made of any material suitable to cookware that is heat resistant.

[0039] FIG. 6 is an exploded view of an embodiment of the slotted component of the detachable hinge C of the present invention, and this embodiment includes a rectangular slot Q, an upper surface R, the lower surface S, the mounting plate T and 2 mounting holes V.

[0040] FIG. 7 is an exploded view of an embodiment of the tongued component of the detachable hinge F of the present invention, and this embodiment includes 2 shoulders W, an upper surface X and a support plate Y.

[0041] Figure 8 is an side exploded view of an embodiment of the hinge assembly joined and his embodiment includes a slotted component C, a tongued component F, and a rounded end Z.

[0042] FIG. 9 is a side view of embodiment of the cooking surface with side pour spouts AA of another embodiment of the present invention.

[0043] While the present invention has been illustrated and described by means of specific embodiments and alternatives, it is to be understood that numerous changes and modifications

can be made without departing from the spirit and scope of the invention. Therefore, it should be understood that the invention is not to be limited in any way except in accordance with the appended claims and their equivalent